

# SPACE OPERATIONS CONTROL CENTER SATELLITE SITUATION REPORT

**VOL. 5 NO. 3**

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SPACE OPERATIONS CONTROL CENTER  
GODDARD SPACE FLIGHT CENTER  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

VOLUME 5 NO. 3

FEBRUARY 15, 1965

SATELLITE SITUATION REPORT

THE FOLLOWING REPORT REFLECTS DATA COMPUTED AND COMPILED BY  
THE GODDARD SPACE FLIGHT CENTER, NORAD, AND SMITHSONIAN ASTROPHICAL  
OBSERVATORY AS OF 1200Z ON FEBRUARY 15, 1965.

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	OBJECTS IN ORBIT			APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
				LAUNCH	NODAL PERIOD	INCLI- NATION			
1958 LAUNCHES									
ALPHA 1	EXPLORER 1	004	US	1 FEB	104.3	33.20	1579	339	
BETA 1	ROCKET BODY	016	US	17 MAR	138.4	34.24	4310	658	
BETA 2	VANGUARD 1	005	US	17 MAR	134.0	34.23	3939	649	
1959 LAUNCHES									
ALPHA 1	VANGUARD 2	011	US	17 FEB	125.4	32.85	3279	562	
ALPHA 2	ROCKET BODY	012	US	17 FEB	129.7	32.90	3652	562	
ETA 1	VANGUARD 3	020	US	18 SEP	129.8	33.34	3716	512	
MU 1	LUNIK 1	112	USSR	2 JAN	HELIOCENTRIC ORBIT				
NU 1	PIONEER 4	113	US	3 MAR	HELIOCENTRIC ORBIT				
IOTA 1	EXPLORER 7	022	US	13 OCT	101.1	50.29	1072	553	
IOTA 2	ROCKET BODY	023	US	13 OCT	100.9	50.29	1050	553	
1960 LAUNCHES									
ALPHA 1	PIONEER 5	027	US	11 MAR	HELIOCENTRIC ORBIT				
BETA 1	ROCKET BODY	028	US	1 APR	99.1	48.40	743	688	
BETA 2	TIROS 1	029	US	1 APR	99.2	48.40	742	697	
BETA 3	NONE	101	US	1 APR	97.9	48.50	703	610	
BETA 4	NONE	115	US	1 APR	99.9	48.16	806	699	
GAMMA 2	TRANSIT 1B	031	US	13 APR	93.8	51.23	570	348	
GAMMA 4	NONE	099	US	13 APR	96.7	51.25	728	476	
EPSILON 3	NONE	036	USSR	15 MAY	90.7	64.97	358	254	
ZETA 1	MIDAS 2	043	US	24 MAY	94.3	33.04	484	482	
ETA 1	TRANSIT 2A	045	US	22 JUN	101.6	66.71	1051	620	
ETA 2	GREB	046	US	22 JUN	101.6	66.71	1053	616	
ETA 3	ROCKET BODY	047	US	22 JUN	101.4	66.68	1033	617	
ETA 4		840	US	22 JUN	101.5	66.69	1047	617	
ETA 5		841	US	22 JUN	101.5	66.69	1047	614	

# OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLI- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>	
1960 LAUNCHES (CONT'D)										
IOTA 1	ECHO 1	049	US	12 AUG	114.0	47.23	1591	1230		
IOTA 2	ROCKET BODY	050	US	12 AUG	118.1	47.24	1687	1500		
IOTA 3	METAL OBJECT	051	US	12 AUG	118.2	47.25	1682	1521		
IOTA 4	METAL OBJECT	052	US	12 AUG	CURRENT ELEMENTS NOT MAINTAINED					
IOTA 5	METAL OBJECT	053	US	12 AUG	118.4	47.29	1687	1533		
NU 1	COURIER 1B	058	US	4 OCT	107.0	28.32	1212	963		
NU 2	ROCKET BODY	059	US	4 OCT	106.6	28.23	1208	923		
XI 1	EXPLORER 8	060	US	3 NOV	112.3	49.93	2246	417		
XI 2	ROCKET BODY	062	US	3 NOV	111.8	49.93	2205	416		
XI 3	NONE	069	US	3 NOV	109.0	49.38	1963	400		
XI 4	NONE	105	US	3 NOV	110.4	50.48	2065	426		
PI 1	TIROS 2	063	US	23 NOV	98.2	48.52	727	621		
PI 2	ROCKET BODY	064	US	23 NOV	98.1	48.51	724	611		
PI 3	NONE	074	US	23 NOV	98.2	48.53	724	616		
PI 4	NONE	075	US	23 NOV	98.3	48.51	731	623		
1961 LAUNCHES										
ALPHA 1	SAMOS 2	070	US	31 JAN	94.7	97.39	546	465		
ALPHA 2	METAL OBJECT	079	US	31 JAN	94.6	97.40	540	463		
GAMMA 1	VENUS PROBE	080	USSR	12 FEB	HELIOCENTRIC ORBIT					
DELTA 2	ROCKET BODY	082	US	16 FEB	118.5	38.86	2590	637		
DELTA 3	NONE	085	US	16 FEB	CURRENT ELEMENTS NOT MAINTAINED					
KAPPA 1	EXPLORER 10	098	US	25 MAR	POSITION UNCERTAIN					
NU 1	EXPLORER 11	107	US	27 APR	107.9	28.79	1768	492		
OMICRON 1	TRANSIT 4A	116	US	29 JUN	103.8	66.82	993	886		
OMICRON 2	INJUN-SR-3	117	US	29 JUN	103.8	66.82	996	885		
OMICRON 3-206**	METAL OBJECTS		US	29 JUN					\$54\$324\$150\$400	
RHO 1	TIROS 3	162	US	12 JUL	100.4	47.90	814	740		

\$54\$324\$150\$400

OBJECTS IN ORBIT				OBJECTS IN ORBIT					
OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLINATION	PERIGEE Km.	APOGEE Km.	TRANSMITTING FREQ. (MC/S)
1961 LAUNCHES (CONT'D)									
RHO 2	ROCKET BODY	165	US	12 JUL	100.3	47.89	739	809	
RHO 3	METAL OBJECT	166	US	12 JUL	98.8	47.93	607	798	
RHO 4	METAL OBJECT	167	US	12 JUL	102.0	47.85	772	934	
SIGMA 1	MIDAS 3	163	US	12 JUL	161.5	91.23	3292	3599	
SIGMA 3	METAL OBJECT	188	US	12 JUL	153.3	91.22	2957	2957	
SIGMA 4	METAL OBJECT	196	US	12 JUL	161.9	91.22	3341	3583	
UPSILON 1	EXPLORER 12	170	US	16 AUG	CURRENT ELEMENTS NOT MAINTAINED				
A DELTA 1	MIDAS 4	192	US	21 OCT	166.0	95.82	3478	3775	
A DELTA 3	METAL OBJECT	194	US	21 OCT	165.6	95.81	3489	3733	
A DELTA 4	METAL OBJECT	195	US	21 OCT	166.4	95.84	3494	3793	
A ETA 1	TRANSIT 4B	202	US	15 NOV	105.8	32.43	957	1101	
A ETA 2	TRAAC	205	US	15 NOV	105.8	32.42	949	1111	
A ETA 3	ROCKET BODY	204	US	15 NOV	105.6	32.41	946	1100	
1962 LAUNCHES									
ALPHA 1	RANGER 3	221	US	26 JAN	HELIOCENTRIC ORBIT				
ALPHA 2	ROCKET BODY	222	US	26 JAN	HELIOCENTRIC ORBIT				
BETA 1	TIROS 4	226	US	8 FEB	100.4	48.31	709	842	
BETA 2	ROCKET BODY	227	US	8 FEB	101.4	48.12	706	938	
BETA 3	METAL OBJECT	228	US	8 FEB	99.5	48.43	706	759	
BETA 4	METAL OBJECT	229	US	8 FEB	100.3	48.30	698	846	
ZETA 1	ORB. SOL. OBS. 1	255	US	7 MAR	96.0	32.84	548	586	
ZETA 2	ROCKET BODY	257	US	7 MAR	96.0	32.83	547	585	
KAPPA 1		271	US	9 APR	153.0	86.63	2838	3359	
KAPPA 3		273	US	9 APR	152.6	86.67	2801	3365	
KAPPA 4		274	US	9 APR	153.3	86.67	2805	3421	
MU 2	ROCKET BODY	282	US	23 APR	HELIOCENTRIC ORBIT				
OMICRON 1	ARIEL 1	285	US/UK	26 APR	100.5	53.87	385	1178	
OMICRON 2	ROCKET BODY	288	US	26 APR	100.4	53.84	399	1153	

# OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCL I- NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)	
1962 LAUNCHES (CONT'D)										
A ALPHA 1	TIROS 5	309	US	19 JUN	100.5	58.13	963	599	\$136.591\$136.077	
A ALPHA 2	ROCKET BODY	311	US	19 JUN	100.4	58.11	958	595		
A ALPHA 3	METAL OBJECT	312	US	19 JUN	101.7	58.22	1080	603		
A ALPHA 4	METAL OBJECT	313	US	19 JUN	99.1	57.99	851	580		
A EPSILON 1	TELSTAR 1	340	US	10 JUL	157.8	44.81	5645	943		
A EPSILON 2	ROCKET BODY	341	US	10 JUL	157.6	44.72	5623	952		
A OMICRON 1		369	US	23 AUG	99.5	98.70	860	615		
A OMICRON 2		370	US	23 AUG	98.2	98.65	738	613		
A OMICRON 3		378	US	23 AUG	100.8	98.71	973	622		
A OMICRON 4		388	US	23 AUG	99.5	98.70	857	616		
A RHO 1	MARINER 2	374	US	27 AUG	HELIOCENTRIC ORBIT					
A RHO 2	ROCKET BODY	375	US	27 AUG	HELIOCENTRIC ORBIT					
A PSI 1	TIROS 6	397	US	18 SEP	98.7	58.33	714	682		
A PSI 2	ROCKET BODY	398	US	18 SEP	98.7	58.33	703	687		
A PSI 3	METAL OBJECT	399	US	18 SEP	99.4	58.43	776	682		
A PSI 4	METAL OBJECT	400	US	18 SEP	98.0	58.20	689	640		
B ALPHA 1	ALOUETTE	424	CANADA	29 SEP	105.5	80.48	1036	999		
B ALPHA 2	ROCKET BODY	426	US	29 SEP	105.4	80.48	1026	1004		
B ALPHA 3	METAL OBJECT	510	US	29 SEP	105.4	80.53	1025	1000		
B ALPHA 4	METAL OBJECT	511	US	29 SEP	105.5	80.45	1046	989		
B GAMMA 1	EXPLORER 14	432	US	2 OCT	CURRENT ELEMENTS NOT MAINTAINED					
B GAMMA 2#	ROCKET BODY	NNA	US	2 OCT	CURRENT ELEMENTS NOT MAINTAINED					
B ETA 1	RANGER 5	439	US	18 OCT	HELIOCENTRIC ORBIT					
B ETA 2	ROCKET BODY	440	US	18 OCT	HELIOCENTRIC ORBIT					
B KAPPA 1		444	US	27 OCT	129.2	71.37	3965	204		
B LAMBDA 1	EXPLORER 15	445	US	27 OCT	312.1	18.04	17404	307		
B LAMBDA 2#	ROCKET BODY	NNA	US	27 OCT	INSUFFICIENT OBSERVATIONS					
B MU 1	ANNA 1B	446	US	31 OCT	107.9	50.15	1184	1075	\$162\$324	

\$136.591\$136.077

OBJECTS IN ORBIT									
OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI- NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1962 LAUNCHES (CONT'D)									
B MU 2	ROCKET BODY	447	US	31 OCT	107.6	50.17	1161	1072	
B NU 3		450	USSR	1 NOV	HELIOCENTRIC ORBIT				
B TAU 1		502	US	13 DEC	107.7	70.37	2013	227	
B TAU 2		504	US	13 DEC	111.6	70.36	2368	236	
B TAU 4	INJUN 3	508	US	13 DEC	102.7	70.36	1551	222	
B TAU 5		513	US	13 DEC	107.5	70.33	2001	225	
B TAU 6		520	US	13 DEC	110.8	70.38	2291	235	
B UPSILON 1	RELAY 1	503	US	13 DEC	185.1	47.53	7437	1321	\$136.140;136.620
B UPSILON 2	ROCKET BODY	515	US	13 DEC	184.8	47.52	7420	1321	
B CHI 1	EXPLORER 16	506	US	16 DEC	104.4	52.01	1174	755	
B PSI 1	TRANSIT 5A	509	US	19 DEC	99.1	90.65	733	698	
B PSI 2		514	US	19 DEC	97.7	90.75	728	570	
B PSI 3		519	US	19 DEC	99.1	90.64	735	695	
B PSI 4		523	US	19 DEC	100.2	90.50	837	701	
1963 LAUNCHES									
1963 03A		527	US	16 JAN	94.4	81.89	522	463	
1963 04A	SYNCOM 1	553	US	14 FEB	CURRENT ELEMENTS NOT MAINTAINED				
1963 04B	ROCKET BODY	532	US	14 FEB	CURRENT ELEMENTS NOT MAINTAINED				
1963 05A		533	US	19 FEB	97.7	100.48	797	501	
1963 05B		534	US	19 FEB	97.7	100.48	798	501	
1963 05C		535	US	19 FEB	96.9	100.49	744	475	
1963 05D		536	US	19 FEB	98.3	100.49	845	515	
1963 08B		566	USSR	2 APR	BARYCENTRIC ORBIT				
1963 09A	EXPLORER 17	564	US	3 APR	94.4	57.60	734	245	
1963 13A	TELSTAR 2	573	US	7 MAY	225.3	42.77	10815	957	136.050

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCL-I- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1963 LAUNCHES (CONT'D)									
1963 13B	ROCKET BODY	575	US	7 MAY	225.1	42.86	10800	956	
1963 14A		574	US	9 MAY	166.4	87.29	3688	3603	
1963 14B		579	US	9 MAY	166.4	87.30	4072	3221	
1963 14C		608	US	9 MAY	166.4	87.35	3663	3628	
1963 14D		589	US	9 MAY	CURRENT ELEMENTS NOT MAINTAINED				
1963 14E		602	US	9 MAY	166.1	87.36	3644	3618	
1963 14F		628	US	9 MAY	166.8	87.35	3680	3642	
1963 14G		629	US	9 MAY	166.4	87.35	3675	3615	
1963 14H		702	US	9 MAY	166.4	87.35	3656	3634	
1963 17A		580	USSR	22 MAY	91.2	48.95	430	235	
1963 17C		582	USSR	22 MAY	92.4	49.18	468	308	
1963 22A		594	US	16 JUN	99.7	90.01	758	733	\$150\$400
1963 22B		603	US	16 JUN	99.7	90.02	759	731	
1963 22C		610	US	16 JUN	101.2	90.22	891	743	
1963 22D		611	US	16 JUN	98.1	89.84	775	565	
1963 24A	TIROS 7	604	US	19 JUN	97.4	58.24	650	622	\$136.233\$136.922
1963 24B	ROCKET BODY	605	US	19 JUN	97.3	58.24	649	615	
1963 24C	METAL OBJECT	606	US	19 JUN	97.9	58.37	683	631	
1963 24D	METAL OBJECT	607	US	19 JUN	96.9	58.08	645	574	
1963 25B		614	US	27 JUN	132.3	82.12	4104	339	
1963 26A	RESEARCH SATELLITE FOR GEOPHYSICS	612	US	28 JUN	102.0	49.76	1294	416	
1963 27A		613	US	29 JUL	94.7	82.32	525	483	
1963 30A		622	US	19 JUL	167.8	88.36	3747	3658	
1963 30B		635	US	19 JUL	167.8	88.36	3722	3673	
1963 30C		630	US	19 JUL	167.5	88.43	3718	3658	
1963 30D		624	US	19 JUL	167.8	88.32	4322	3076	
1963 30E		631	US	19 JUL	168.3	88.43	3778	3661	



OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCL- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1963 LAUNCHES (CONT'D)									
1963 31A	SYNCOM 2	634	US	26 JUL	1438.6	32.16	35866	35805	\$136.468\$136.980 \$1814.069 \$1815.794 \$1820.177
1963 31B	ROCKET BODY	625	US	26 JUL	CURRENT ELEMENTS NOT MAINTAINED				
1963 38A		669	US	28 SEP	107.1	89.90	1117	1070	
1963 38B		670	US	28 SEP	107.4	89.91	1134	1078	
1963 38C		671	US	28 SEP	107.3	89.91	1134	1076	
1963 38D		672	US	28 SEP	107.3	89.93	1123	1187	
1963 38E		745	US	28 SEP	107.1	89.94	1117	1068	
1963 39A		674	US	17 OCT	6480.6	38.02	116331	101199	
1963 39B		675	US	17 OCT	2319.4	35.90	102371	953	
1963 39C		692	US	17 OCT	6511.5	36.88	115480	102781	136.652\$162\$324
1963 42B		682	US	29 OCT	91.1	89.97	393	266	
1963 43A	POLYOT 1	683	USSR	1 NOV	102.3	58.94	1394	344	
1963 43B		684	USSR	1 NOV	100.4	58.63	1213	336	
1963 43C		685	USSR	1 NOV	96.7	58.97	897	303	
1963 43D		686	USSR	1 NOV	99.8	59.81	1166	333	
1963 46A	EXPLORER 18	693	US	27 NOV	5603.8	37.70	192566	3691	136.111
1963 47A	CENTAUR 2	694	US	27 NOV	107.8	30.37	1767	481	
1963 47B		696	US	27 NOV	107.2	30.07	1622	573	
1963 47C		697	US	27 NOV	107.5	30.07	1629	587	
1963 47D		698	US	27 NOV	108.0	29.90	1659	609	
1963 47E		699	US	27 NOV	108.6	30.45	1749	575	
1963 47F		700	US	27 NOV	108.7	30.47	1755	571	
1963 47G		701	US	27 NOV	107.8	30.00	1640	609	
1963 47H		739	US	27 NOV	105.9	30.41	1584	486	
1963 49A		703	US	5 DEC	106.8	89.96	1095	1064	
1963 49B		704	US	5 DEC	107.1	89.97	1123	1067	\$150\$400

OBJECTS IN ORBIT									
OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1963 LAUNCHES (CONT'D)									
1963 49C		705	US	5 DEC	107.1	89.96	1121	1067	
1963 49D		706	US	5 DEC	107.1	89.96	1122	1061	
1963 49E		715	US	5 DEC	107.1	89.97	1115	1072	
1963 49F		753	US	5 DEC	107.1	89.96	1127	1062	
1963 53A	EXPLORER 19	714	US	19 DEC	115.4	78.64	2318	634	
1963 53B		721	US	19 DEC	115.9	78.59	2398	592	
1963 53C		722	US	19 DEC	115.8	78.58	2384	599	
1963 53D		723	US	19 DEC	115.9	78.59	2393	601	
1963 53E		724	US	19 DEC	115.9	78.62	2386	612	
1963 53F		725	US	19 DEC	115.8	78.61	2381	603	
1963 53G		726	US	19 DEC	115.8	78.61	2383	600	
1963 53H		732	US	19 DEC	115.8	78.59	2388	597	
1963 54A	TIROS 8	716	US	21 DEC	99.4	58.51	752	704	\$136.231
1963 54B		717	US	21 DEC	99.3	58.52	745	705	\$136.923
1963 54C		720	US	21 DEC	101.1	58.48	919	700	
1963 54D		736	US	21 DEC	97.7	58.49	714	581	
1964 LAUNCHES									
1964 01A		727	US	11 JAN	103.4	69.93	936	910	
1964 01B	GGSE	728	US	11 JAN	103.4	69.91	936	910	
1964 01C	EGRS	729	US	11 JAN	103.4	69.91	932	912	136.803
1964 01D	SOLAR RAD.	730	US	11 JAN	103.5	69.92	935	910	136.886
1964 01E		731	US	11 JAN	103.5	69.92	935	910	
1964 02A		733	US	19 JAN	101.3	99.08	846	795	
1964 02B		734	US	19 JAN	101.3	99.08	832	807	
1964 02C		735	US	19 JAN	101.3	99.08	835	808	
1964 03A	RELAY 2	737	US	21 JAN	194.7	46.32	7412	2087	136.620

# OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCL I- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1964 LAUNCHES (CONT'D)									
1964 03B		738	US	21 JAN	194.8	46.35	7423	2082	
1964 04A	ECHO 2	740	US	25 JAN	108.5	81.49	1300	1014	136.021;136.170
1964 04B		741	US	25 JAN	108.9	81.51	1310	1045	
1964 04C		742	US	25 JAN	108.8	81.49	1306	1042	
1964 04D		743	US	25 JAN	108.8	81.55	1310	1038	
1964 04E		749	US	25 JAN	97.6	81.56	995	290	
1964 05A	SATURN 5	744	US	25 JAN	93.4	31.45	615	259	
1964 06A	ELEKTRON 1	746	USSR	30 JAN	169.3	60.88	7117	401	
1964 06B	ELEKTRON 2	748	USSR	30 JAN	1356.4	59.06	67470	952	
1964 06C		750	USSR	30 JAN	168.1	60.88	7024	397	
1964 06D		751	USSR	30 JAN	1384.1	59.21	68545	982	
1964 11A		759	US	28 FEB	94.6	82.08	509	492	
1964 11B		760	US	28 FEB	93.6	82.05	459	443	
1964 11C		761	US	28 FEB	93.8	82.08	466	452	
1964 15A	ARIEL 2	771	US/UK	27 MAR	100.5	51.69	1274	289	136.557
1964 15B		775	US	27 MAR	100.1	51.66	1237	285	
1964 15C		847	US	27 MAR	103.8	51.39	1508	369	
1964 16D		785	USSR	2 APR	HELIOCENTRIC ORBIT				
1964 19B	POLYOT	784	USSR	12 APR	91.9	58.05	436	299	
1964 26A		801	US	4 JUN	103.1	90.49	954	856	\$150\$400
1964 26B		805	US	4 JUN	103.9	90.19	981	905	
1964 26C		806	US	4 JUN	102.3	90.82	952	786	
1964 26D		809	US	4 JUN	103.1	90.50	955	856	
1964 30A		811	US	13 JUN	90.9	114.97	328	306	
1964 31A		812	US	18 JUN	101.6	99.78	839	829	
1964 31B		813	US	18 JUN	101.6	99.79	840	831	
1964 31C		815	US	18 JUN	101.6	99.80	843	825	
1964 35A		824	US	2 JUL	94.9	82.09	530	496	

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLI- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
<b>1964 LAUNCHES (CONT'D)</b>									
1964 38A	ELECTRON 3	829	USSR	10 JUL	168.1	60.82	7033	394	
1964 38B	ELECTRON 4	830	USSR	10 JUL	1313.8	59.84	66066	651	
1964 38C		831	USSR	10 JUL	168.5	60.80	7060	398	
1964 38D		832	USSR	10 JUL	1341.3	59.96	67179	643	
1964 40A		836	US	17 JUL	6091.6	38.94	104302	102173	
1964 40B		837	US	17 JUL	5996.4	40.75	112299	93612	
1964 40C		838	US	17 JUL	2349.9	38.30	104016	319	136.771
1964 41B		843	US	28 JUL	BARYCENTRIC ORBIT				
1964 42A	COSMOS 36	844	USSR	30 JUL	89.7	48.99	278	222	
1964 45B		851	US	14 AUG	127.0	95.69	3714	274	
1964 46D		856	USSR	18 AUG	89.9	56.08	311	182	
1964 47A	SYNCOM 3	858	US	19 AUG	1436.5	.07	35799	35790	\$136.470\$136.980 \$1820.177\$1815.794 \$1814.931
1964 47B		862	US	19 AUG	694.5	16.80	38084	1113	
1964 48A		861	US	21 AUG	90.4	114.97	294	287	
1964 49D	COSMOS 41	869	USSR	22 AUG	714.6	65.48	39583	617	
1964 49E		898	USSR	22 AUG	716.3	65.20	39839	446	
1964 50A	COSMOS 42	864	USSR	22 AUG	96.4	48.96	939	225	
1964 50B		866	USSR	22 AUG	95.5	48.95	848	219	
1964 50C	COSMOS 43	867	USSR	22 AUG	96.4	48.96	934	226	\$136.326;\$136.350 \$136.680
1964 51A	EXPLORER 20	870	US	25 AUG	103.9	79.91	1018	872	
1964 51B		871	US	25 AUG	103.9	79.91	1014	870	
1964 51C		873	US	25 AUG	103.6	79.84	991	868	
1964 51D		874	US	25 AUG	103.6	79.84	1031	830	
1964 51E		875	US	25 AUG	103.6	79.83	1038	822	
1964 52A	NIMBUS 1	872	US	28 AUG	98.3	98.68	934	428	136.499
1964 52B		878	US	28 AUG	98.4	98.66	936	427	

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLI- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1964 LAUNCHES (CONT'D)									
1964 53A	COSMOS 44	876	USSR	28 AUG	99.5	65.07	868	604	
1964 53B		877	USSR	28 AUG	99.6	65.10	801	677	
1964 54A	OGO 1	879	US	5 SEP	3839.9	32.34	148408	1289	\$136.200\$400.250 \$400.850 136.146
1964 60A	EXPLORER 21	889	US	4 OCT	2080.3	33.72	9288	917	
1964 63A		893	US	6 OCT	106.3	89.92	1085	1030	
1964 63B		897	US	6 OCT	106.6	89.92	1088	1053	
1964 63C		900	US	6 OCT	106.6	89.93	1088	1051	
1964 63D		901	US	6 OCT	106.6	89.92	1088	1055	
1964 63E		902	US	6 OCT	106.6	89.93	1088	1054	
1964 63F		903	US	6 OCT	106.6	89.93	1089	1055	
1964 64A	EXPLORER 22	899	US	10 OCT	104.8	79.71	1079	890	\$136.171\$162\$324 \$20\$40\$41\$360
1964 64B		907	US	10 OCT	104.7	79.71	1077	891	
1964 64C		976	US	10 OCT	104.1	79.35	1056	848	
1964 64D		977	US	10 OCT	105.5	80.07	1122	915	
1964 68B		914	US	23 OCT	89.5	95.45	248	246	
1964 69A	COSMOS 49	913	USSR	24 OCT	91.4	48.95	430	256	
1964 72A		922	US	4 NOV	95.0	82.05	524	513	
1964 72B		925	US	4 NOV	94.9	82.04	521	508	
1964 72C		926	US	4 NOV	94.8	82.07	513	508	
1964 72D		927	US	4 NOV	94.8	82.03	512	511	
1964 73A	MARINER 3	923	US	5 NOV	HELIOCENTRIC ORBIT				
1964 74A	EXPLORER 23	924	US	6 NOV	99.2	51.94	980	463	\$136.080\$136.857
1964 76A	EXPLORER 24	931	US	21 NOV	116.1	81.38	2483	525	136.711
1964 76B	EXPLORER 25	932	US	21 NOV	116.2	81.36	2494	530	136.293\$136.860
1964 76C		933	US	21 NOV	116.2	81.37	2493	534	
1964 76D		934	US	21 NOV	116.3	81.36	2497	537	
1964 76E		935	US	21 NOV	116.3	81.39	2505	529	

OBJECT	CODE NAME	CATALOGUE NUMBER	OBJECTS IN ORBIT				APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
			SOURCE	LAUNCH	NODAL PERIOD	INCL-I- NATION			
1964 LAUNCHES (CONT')									
1964 76F		936	US	21 NOV	116.2	81.37	2460	557	
1964 76G		937	US	21 NOV	116.4	81.37	2505	536	
1964 76H		939	US	21 NOV	115.9	81.31	2444	541	
1964 76I		940	US	21 NOV	116.1	81.34	2484	534	
1964 76J		941	US	21 NOV	116.1	81.35	2496	518	
1964 76K		960	US	21 NOV	116.4	81.34	2509	531	
1964 77A	MARINER 4	938	US	28 NOV	HELIOCENTRIC ORBIT				
1964 77B		942	US	28 NOV	HELIOCENTRIC ORBIT				
1964 78C	ZOND 2	945	USSR	30 NOV	HELIOCENTRIC ORBIT				
1964 80A	COSMOS 51	947	USSR	9 DEC	92.3	48.75	518	257	
1964 80B		948	USSR	9 DEC	92.0	48.76	487	251	
1964 83A		953	US	13 DEC	106.0	89.99	1065	1020	
1964 83B		956	US	13 DEC	106.3	90.00	1094	1019	
1964 83C		959	US	13 DEC	106.3	90.00	1089	1025	136.561\$162\$234
1964 83D		965	US	13 DEC	106.3	89.99	1086	1028	\$150\$400
1964 83E		966	US	13 DEC	106.3	89.98	1086	1028	
1964 83F		967	US	13 DEC	106.3	89.99	1086	1027	\$20;136.738
1964 84A	SAN MARCO	957	ITALY	15 DEC	94.1	37.78	740	199	\$136.536
1964 86A	EXPLORER 26	963	US	21 DEC	456.3	20.14	26199	310	136.275
1965 LAUNCHES									
1965 03A		973	US	19 JAN	97.6	98.76	832	463	
1965 03B		974	US	19 JAN	97.4	98.82	806	461	
1965 03C		975	US	19 JAN	97.5	98.68	812	467	
1965 04A	TIROS 9	978	US	22 JAN	119.2	96.41	2582	707	\$136.231\$136.920
1965 04B		979	US	22 JAN	119.3	96.43	2593	707	
1965 06A	COSMOS 53	983	USSR	30 JAN	98.7	48.72	1166	221	

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLIN- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1965 LAUNCHES (CONT'D)									
1965 06B		984	USSR	30 JAN	98.6	48.73	1151	224	
1965 06C		985	USSR	30 JAN	96.9	48.72	812	226	
1965 06D		986	USSR	30 JAN	96.3	48.78	816	220	
1965 07A	ORB.SOL.OBS. 2	987	US	3 FEB	96.4	32.86	604	552	136.712
1965 07B		988	US	3 FEB	96.6	32.86	640	545	
1965 08A		1000	US	11 FEB	145.6	32.15	2802	2776	
1965 08B		1001	US	11 FEB	145.4	32.15	2779	2778	
1965 08C		1002	US	11 FEB	147.7	32.15	2807	2778	

\* APHELION PERIHELION IN ASTRONOMICAL UNITS, INCLINATION TO ECLIPTIC.  
 \*\* TWO HUNDRED AND FOUR METAL OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH  
 1961 OMICRON 1 AND 1961 OMICRON 2. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE  
 FOUND IN THE DECAYED OBJECTS LIST.  
 \$ TRANSMITTING ON COMMAND ONLY.  
 & TRANSMITTING WHEN IN SUNLIGHT ONLY.  
 # NO CATALOGUE NUMBER ASSIGNED.



# DECAYED OBJECTS

PLEASE ADD THE FOLLOWING TO THE DECAYED OBJECTS LIST:

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>DECAY</u>
1961 OMICRON 62		231	US	29 JUN	13 FEB 65
1964 69B		915	USSR	24 OCT	10 FEB 64
1964 70E		989	USSR	28 OCT	13 NOV 64
1964 70F		990	USSR	28 OCT	11 NOV 64
1964 70G		991	USSR	28 OCT	8 NOV 64
1964 70H		992	USSR	28 OCT	13 NOV 64
1964 70J		993	USSR	28 OCT	12 NOV 64
1964 70K		994	USSR	28 OCT	13 NOV 64
1964 70L		995	USSR	28 OCT	11 NOV 64
1964 70M		996	USSR	28 OCT	12 NOV 64
1964 70N		997	USSR	28 OCT	14 NOV 64
1964 70P		998	USSR	28 OCT	10 NOV 64
1964 70Q		999	USSR	28 OCT	12 NOV 64
1964 70R		1003	USSR	28 OCT	11 NOV 64
1964 70S		1004	USSR	28 OCT	14 NOV 64
1964 70T		1005	USSR	28 OCT	12 NOV 64
1964 70U		1006	USSR	28 OCT	12 NOV 64
1964 70V		1007	USSR	28 OCT	12 NOV 64
1964 70W		1008	USSR	28 OCT	12 NOV 64
1964 70X		1009	USSR	28 OCT	13 NOV 64
1964 70Y		1010	USSR	28 OCT	13 NOV 64
1964 70Z		1011	USSR	28 OCT	9 NOV 64
1964 70AA		1012	USSR	28 OCT	10 NOV 64
1964 70AB		1013	USSR	28 OCT	9 NOV 64
1964 70AC		1014	USSR	28 OCT	17 NOV 64
1964 70AD		1015	USSR	28 OCT	12 NOV 64
1964 70AE		1016	USSR	28 OCT	13 NOV 64
1964 70AF		1017	USSR	28 OCT	11 NOV 64
1964 70AG		1018	USSR	28 OCT	13 NOV 64
1964 70AH		1019	USSR	28 OCT	11 NOV 64

DECAYED OBJECTS (CONT'D)

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>DECAY</u>
1964 70AJ		1020	USSR	28 OCT	14 NOV 64
1964 70AX		1021	USSR	28 OCT	13 NOV 64
1964 70AL		1022	USSR	28 OCT	12 NOV 64
1964 70AM		1023	USSR	28 OCT	12 NOV 64
1964 70AN		1024	USSR	28 OCT	14 NOV 64
1964 70AP		1025	USSR	28 OCT	13 NOV 64
1964 70AQ		1026	USSR	28 OCT	12 NOV 64
1964 70AR		1027	USSR	28 OCT	12 NOV 64
1964 70AS		1028	USSR	28 OCT	13 NOV 64
1964 70AT		1029	USSR	28 OCT	12 NOV 64
1964 70AU		1030	USSR	28 OCT	13 NOV 64
1964 70AV		1031	USSR	28 OCT	13 NOV 64
1964 70AW		1032	USSR	28 OCT	16 NOV 64
1964 70AX		1033	USSR	28 OCT	11 NOV 64
1964 70AY		1034	USSR	28 OCT	9 NOV 64
1964 70AZ		1035	USSR	28 OCT	13 NOV 64
1964 70BA		1036	USSR	28 OCT	12 NOV 64
1964 70BB		1037	USSR	28 OCT	12 NOV 64
1964 70BC		1038	USSR	28 OCT	15 NOV 64
1964 70BD		1039	USSR	28 OCT	13 NOV 64
1964 70BE		1040	USSR	28 OCT	13 NOV 64
1964 70BF		1041	USSR	28 OCT	12 NOV 64
1964 70BG		1042	USSR	28 OCT	13 NOV 64
1964 70BH		1043	USSR	28 OCT	12 NOV 64
1964 70BJ		1044	USSR	28 OCT	17 NOV 64
1964 70BK		1045	USSR	28 OCT	17 NOV 64
1964 70BL		1046	USSR	28 OCT	12 NOV 64
1964 70BM		1047	USSR	28 OCT	11 NOV 64
1964 70BN		1048	USSR	28 OCT	14 NOV 64
1964 70BP		1049	USSR	28 OCT	15 NOV 64
1964 70BQ		1050	USSR	28 OCT	14 NOV 64
1964 70BR		1051	USSR	28 OCT	12 NOV 64

DECAYED OBJECTS (CONT'D)

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>DECAY</u>
1964 70BS		1052	USSR	28 OCT	13 NOV 64
1964 70BT		1053	USSR	28 OCT	13 NOV 64
1964 70BU		1054	USSR	28 OCT	13 NOV 64
1964 70BV		1055	USSR	28 OCT	11 NOV 64
1964 70BW		1056	USSR	28 OCT	13 NOV 64
1964 70BX		1057	USSR	28 OCT	12 NOV 64
1964 70BY		1058	USSR	28 OCT	13 NOV 64
1964 70BZ		1059	USSR	28 OCT	11 NOV 64
1964 70CA		1060	USSR	28 OCT	10 NOV 64
1964 70CB		1061	USSR	28 OCT	9 NOV 64
1964 70CC		1062	USSR	28 OCT	16 NOV 64
1964 70CD		1063	USSR	28 OCT	11 NOV 64
1964 70CE		1064	USSR	28 OCT	15 NOV 64
1964 70CF		1065	USSR	28 OCT	17 NOV 64
1964 70CG		1066	USSR	28 OCT	11 NOV 64
1964 70CH		1067	USSR	28 OCT	17 NOV 64
1964 70CJ		1068	USSR	28 OCT	14 NOV 64
1964 70CK		1069	USSR	28 OCT	16 NOV 64
1964 70CL		1070	USSR	28 OCT	13 NOV 64
1964 70CM		1071	USSR	28 OCT	12 NOV 64
1964 70CN		1072	USSR	28 OCT	10 NOV 64
1964 70CP		1073	USSR	28 OCT	12 NOV 64
1964 70CQ		1074	USSR	28 OCT	13 NOV 64
1964 70CR		1075	USSR	28 OCT	13 NOV 64
1964 70CS		1076	USSR	28 OCT	13 NOV 64
1964 70CT		1077	USSR	28 OCT	14 NOV 64
1964 70CU		1078	USSR	28 OCT	12 NOV 64
1964 70CV		1079	USSR	28 OCT	12 NOV 64
1964 70CW		1080	USSR	28 OCT	17 NOV 64
1964 70CX		1081	USSR	28 OCT	11 NOV 64
1964 70CY		1082	USSR	28 OCT	11 NOV 64

DECAYED OBJECTS (CONT'D)

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>DECAY</u>
1964 70CZ		1083	USSR	28 OCT	11 NOV 64
1964 70DA		1084	USSR	28 OCT	11 NOV 64
1964 84B		958	US	15 DEC	6-7 FEB 65
1964 84C		962	US	15 DEC	21 JAN 65
1965 02A		972	US	15 JAN	9 FEB 65

The objects listed above in the 1964 70 series have been catalogued as pieces of COSMOS 50 debris. They were not previously catalogued because of computer limitations.